

ABSTRACT

A wireless network system that utilizes a multi-beam antenna to communicate with multiple remote stations. The system includes a hub and one or more remote stations. The hub is connected to a source which requires communication with the remote stations, in order to exchange information, such as data and/or voice transmissions. The hub includes a multi-beam antenna assembly, one or more hub radio transceivers, an Ethernet switch, and a controller. Each remote station includes a single directive antenna, a single remote station radio transceiver, an Ethernet switch, and a controller. The multi-beam antenna assembly includes a beam former and a multi-beam antenna. The multi-beam antenna at the hub provides the ability to communicate with more than one remote station at a time. Communication between the hub and remote stations is via a line of sight radio path using directive antenna beams associated with the multi-beam antenna and the remote station antenna. The hub is able to serve and communicate with a multiplicity of fixed, line of sight remote stations using multiple hub radio transceivers co-located at the hub. Each remote station only communicates with the hub. The hub also includes received signal strength monitoring equipment with power control and can include more than one multi-beam antenna at the hub.